

**[0030]** FIG. 22 shows an example wearable collar configured to house one or more components of an electronic device, as described herein;

**[0031]** FIGS. 23A, 23B show an example attachment having an electronic device and configured to couple with a wearable collar, as described herein;

**[0032]** FIGS. 24A, 24B show an example attachment having an electronic device and configured to couple with a wearable collar, as described herein;

**[0033]** FIGS. 25A, 25B, 25C show another example attachment having an electronic device and configured to couple with a wearable collar, as described herein;

**[0034]** FIGS. 26A, 26B, 26C show another example attachment having an electronic device and configured to couple with a wearable collar, as described herein; and

**[0035]** FIGS. 27A, 27B, 27C show another example attachment having an electronic device and configured to couple with a wearable collar, as described herein.

#### DETAILED DESCRIPTION

**[0036]** The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention or inventions. The description of illustrative embodiments is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description. In the description of the exemplary embodiments disclosed herein, any reference to direction or orientation is merely intended for convenience of description and is not intended in any way to limit the scope of the present inventions. Relative terms such as “lower,” “upper,” “horizontal,” “vertical,” “above,” “below,” “up,” “down,” “left,” “right,” “top,” “bottom,” “front” and “rear” as well as derivatives thereof (e.g., “horizontally,” “downwardly,” “upwardly,” etc.) should be construed to refer to the orientation as then described or as shown in the drawing under discussion. These relative terms are for convenience of description only and do not require a particular orientation unless explicitly indicated as such. Terms such as “attached,” “affixed,” “connected,” “coupled,” “interconnected,” “secured” and other similar terms refer to a relationship wherein structures are secured or attached to one another either directly or indirectly through intervening structures, as well as both movable or rigid attachments or relationships, unless expressly described otherwise.

**[0037]** The discussion herein describes and illustrates some possible non-limiting combinations of features that may exist alone or in other combinations of features. Furthermore, as used herein, the term “or” is to be interpreted as a logical operator that results in true whenever one or more of its operands are true. Furthermore, as used herein, the phrase “based on” is to be interpreted as meaning “based at least in part on,” and therefore is not limited to an interpretation of “based entirely on.”

**[0038]** As used throughout, ranges are used as shorthand for describing each and every value that is within the range. Any value within the range can be selected as the terminus of the range. In addition, all references cited herein are hereby incorporated by referenced in their entireties. In the event of a conflict in a definition in the present disclosure and that of a cited reference, the present disclosure controls.

**[0039]** Features of the present inventions may be implemented in software, hardware, firmware, or combinations thereof. The computer programs described herein are not

limited to any particular embodiment, and may be implemented in an operating system, application program, foreground or background processes, driver, or any combination thereof. The computer programs may be executed on a single computer or server processor or multiple computer or server processors.

**[0040]** Processors described herein may be any central processing unit (CPU), microprocessor, micro-controller, computational, or programmable device or circuit configured for executing computer program instructions (e.g., code). Various processors may be embodied in computer and/or server hardware of any suitable type (e.g., desktop, laptop, notebook, tablets, cellular phones, etc.) and may include all the usual ancillary components necessary to form a functional data processing device including without limitation a bus, software and data storage such as volatile and non-volatile memory, input/output devices, graphical user interfaces (GUIs), removable data storage, and wired and/or wireless communication interface devices including Wi-Fi, Bluetooth (e.g., Bluetooth classic, Bluetooth low energy), LAN, etc.

**[0041]** Computer-executable instructions or programs (e.g., software or code) and data described herein may be programmed into and tangibly embodied in a non-transitory computer-readable medium that is accessible to and retrievable by a respective processor as described herein which configures and directs the processor to perform the desired functions and processes by executing the instructions encoded in the medium. A device embodying a programmable processor configured to such non-transitory computer-executable instructions or programs may be referred to as a “programmable device,” or “device,” and multiple programmable devices in mutual communication may be referred to as a “programmable system.” It should be noted that non-transitory “computer-readable medium” as described herein may include, without limitation, any suitable volatile or non-volatile memory including random access memory (RAM) and various types thereof, read-only memory (ROM) and various types thereof, USB flash memory, and magnetic or optical data storage devices (e.g., internal/external hard disks, floppy discs, magnetic tape CD-ROM, DVD-ROM, optical disk, ZIP™ drive, Blu-ray disk, and others), which may be written to and/or read by a processor operably connected to the medium.

**[0042]** In certain embodiments, the present inventions may be embodied in the form of computer-implemented processes and apparatuses such as processor-based data processing and communication systems or computer systems for practicing those processes. The present inventions may also be embodied in the form of software or computer program code embodied in a non-transitory computer-readable storage medium, which when loaded into and executed by the data processing and communications systems or computer systems, the computer program code segments configure the processor to create specific logic circuits configured for implementing the processes.

**[0043]** Collars and other devices (e.g., harnesses) are devices used on animals, such as pets, to constrain the pet. For example, a pet may wear a collar during a walk with a pet owner so that the pet remains with the pet owner. Pet collars may also be used to store and/or convey information, such as identification information of the pet and/or the pet owner, address information of the pet, medical information